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PROJECT CORONA

1. Purpose: Project CORONA contemplates the covert development and subsequent operational use of a short lived reconnaissance satellite from which, at the completion of its mission, a recoverable capsule containing exposed film is separated for return and pick up in a preselected ocean area. Prior to the initiation of this project, the development of such a system had been started by the Air Force as a part of Weapons System 117L but was officially cancelled early in March. Thus, CORONA involves the picking up and carrying through covertly of a program already undertaken together with technical modifications therein as indicated below.

2. Configuration: Taking advantage of arrangements already made by the Air Force, the basic vehicle for project CORONA will be a two-stage rocket consisting of the same second stage that is being built by Lockheed for WS-117L with a Thor booster as the first stage (in place of the Atlas booster which will be the first stage of the 117L vehicle). The payload will be a pod containing a twenty-four inch focal length camera and a recoverable capsule into which the exposed film feeds as the camera operates. Either the whole second stage of the vehicle, or possibly only the pod containing the payload, will be stabilized after it is in orbit and will serve as a platform from which the camera continuously looks downward to the earth and takes pictures by scanning at right angles to the path. This configuration is expected to yield a resolution of about twenty feet on the ground which should be sufficient to permit structures to be distinguished from one another and to allow the detection and identification of such major reconnaissance targets as missile sites under construction, previously unobserved communities, or other major installations in the areas hitherto inaccessible to reconnaissance such as the Soviet far north.

3. Program: It is proposed that twelve to fifteen vehicles in the above configuration be produced. Although it has not yet been possible to establish a firm schedule of delivery dates, it appears likely that the first firing can be in June of 1959. It is tentatively planned to schedule firings at the rate of one a month for four to six months beginning in June 1959 and to achieve a rate of two a month as soon as possible. On this basis,

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fifteen firings could be completed before June 1960. It is estimated that only about sixty percent of these will be successfully orbited, operate without malfunction and be recovered.

4. Modification of Earlier Plans: The configuration briefly described above differs from that contemplated in the program originally launched by the Air Force. The earlier plan called for spin stabilization of the pod containing the payload, a six inch focal length camera with <sup>out</sup> image motion compensation, and a very short exposure time. Such a configuration could be available at least six months sooner and would involve somewhat less technological risk (because of its reliance on a proven method of stabilization) than the one presently proposed. On the other hand, the configuration originally proposed would have required the use of fast film which yields grainy photography and would have yielded a resolution of only sixty feet on the ground. To carry through the development of the original configuration and at the same time to undertake the development of the modified configuration in parallel would have obvious advantages but would add   to the total cost of the program and would complicate the problem of maintaining cover. On balance, it is believed, (a) that the more sophisticated modified configuration <sup>SA</sup> could be developed with top priority and (b) that the six month earlier availability date of the original configuration does not justify its cost in terms of funds and effort.

5. Administration: CORONA is being carried out under the authority of the Advanced Research Projects Agency and the Central Intelligence Agency with the support and participation of the U.S. Air Force. ARPA has authorized and will exercise general technical supervision over the development of the vehicle. Detailed supervision of vehicle development is being performed by the Ballistic Missile Division USAF acting as agent for ARPA. The Ballistic Missile Division has also assumed the responsibility for the provision of necessary ground facilities. CIA participates in supervision of the technical development, especially as applied to the actual reconnaissance equipment, is undertaking all procurement that must be handled covertly, and has general responsibility for cover and for the maintenance of security. In the operational phase actual missile launchings will be carried out at Camp Cook by technical staffs of the companies that are building this reconnaissance system. Tracking will be carried out from stations being established by the Ballistic Missile Division. Recovery will be accomplished by a Navy task force. The line of command for these field activities of launching, tracking and recovery will be through the Ballistic Missile Division. Subject to approval by the appropriate political

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authorities, the general schedule of launchings will be determined by the availability of vehicles and launching facilities. Specific timing within this schedule will be determined so far as possible on the basis of weather prevailing over target areas. For both cover and control purposes, weather will be reported through an already existing CIA channel and specific firing dates will be selected by the Central Intelligence Agency.

6. Cover and Security: As noted above the initial step taken to place this undertaking on a truly covert basis was the cancellation of the program already started by the Air Force as a part of its WS-117L development. The cover and security arrangements already made or contemplated are as follows:

a. Subsequent to the ostensible cancellation, extremely limited numbers of individuals in the participating companies were cleared for and advised of procedures to be employed in CORONA. Compartmentation of this project from other activities has been established in a satisfactory manner in all of the companies and an internal cover story has been worked out for use in each company to explain to unwitting company personnel the nature of the compartmented and highly classified work which will be going forward. Generally speaking the personnel actually employed in the design and production of the classified reconnaissance equipment must be witting of its true purpose.

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d. The strictest security control is being maintained over all aspects of CORONA. All communications which reflect the existence of this project are handled within Top Secret procedures. A list of all individuals who are witting of the project is maintained. Individuals are cleared for and made knowledgeable of the project only on a strict need-to-know basis. Additional clearances may be granted only with prior approval from the CIA project office and this authority will not be delegated to any other organization concerned with the project.

7. Procurement: Of the total procurement required for CORONA, as large a proportion as possible will be handled relatively overtly as a part of the WS-117L and other programs. In accordance with this general plan, both the Thor booster, which is produced by Douglas for a number of military applications and the Lockheed second stage vehicle which (as noted above) is being developed for WS-117L will simply be allocated from the production schedules already in effect for these items and will be procured by the Air Force. Only the pods containing reconnaissance equipment and the recoverable film cassettes will be procured covertly by the Central Intelligence Agency.

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Production of only the covert items will be compartmented in the several companies. The responsibility for final assembly will rest with Lockheed and arrangements are being made which will permit Lockheed's production, testing, and the bulk of its check-out activities to be compartmented and securely carried out up to the moment when the reconnaissance pod is substituted for a [ ] instrumented nose cone payload.

8. Financing: The total cost of the program herein outlined, assuming that it will be limited to 12 vehicles, is estimated at approximately [ ]

a. Of this amount, covert procurement of the payload would account for approximately [ ] as follows:

Recoverable Capsules

Cameras

Payload Pod and assembly costs

TOTAL

It is proposed that these costs would be financed by the Central Intelligence Agency, subject to obtaining the funds from the Agency's Reserve.

b. The largest part of the [ ] total represents the cost of the Thor boosters and the Lockheed second stage vehicles. A rather arbitrary allowance of [ ] per completed vehicle has been included for these items which therefore account for

c. In addition to the foregoing cost for development and procurement of hardware, there will be significant operational costs. No

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precise estimate of these is yet available and an estimate of [ ]  
[ ] has been included in the above total of [ ]

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d. No allowance has been made for the cost of facilities, including especially two new launching pads at Camp Cook and certain tracking facilities in the Pacific, which are being built so as to be available to support this program. The reason for this omission is that these facilities would soon be required in any event for military programs and the effect of CORONA has merely been to advance the timing of their construction. Any increment of cost to be incurred will be small.

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